

Appl. No. 10/071,143

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in this application:

Listing of the Claims:

1.(currently amended) A method for producing a synthetic dental restorative [[material]] part such as a full or partial dental prosthesis, comprising:

spray applying with a spray device a material having at least a polymerizable synthetic material onto a base in succeeding layers such that each layer of the spray applied material is polymerized by a light source mounted on the spray device, the material includes a wax like substance having a viscosity such that a run off of the just applied spray drops used for the layer building is prevented while, on the other hand, the viscosity value is so small that it is possible to perform a penetration of the spray jet thereinto in a favorable manner;

hardening at least one already applied layer prior to the application of subsequent layers wherein each layer is polymerized prior to the application thereonto of the next layer to a polymerized condition which is less than complete polymerization yet is such that the layer supports the retention of the next layer applied thereon.

Claims 2-4 (cancelled)

5.(currently amended) A method for producing a synthetic dental restorative [[material]] part such as a full or partial dental prosthesis, comprising:

spray applying with a spray device a material having at least a polymerizable synthetic material onto a base in succeeding layers such that each layer of the spray applied material is polymerized by a light source mounted on the spray device, the material includes a wax like substance having a viscosity such that a run off of the just applied spray drops used for the layer building is prevented while, on the other hand, the viscosity value is so small that it is possible to perform a penetration of the spray jet thereinto in a favorable

Appl. No. 10/071,143

manner; and hardening at least one already applied layer prior to the application of subsequent layers; and wherein the material which is spray applied is a polymerizable wax-like dental material having up to 70% by weight of at least one of a polymerizable monomer and oligomer, from 0.01 to 10% by weight of a polymerization initiator, and at least 20% by weight of a mixture having a selected one of wax-like and a flowable monomer and a color pigment, and the dental material has the property that one of its physical condition and its viscosity changes within a relatively small range of temperature flux.

Claim 6 (cancelled)

7.(currently amended) A method for producing a synthetic dental restorative {[material]} part according to claim 1, wherein the spray applied material is heated before being spray applied to a temperature less than the polymerization temperature of the material.

8.(currently amended) A method for producing a synthetic dental restorative[[material]]part according to claim 1, and further comprising thermally treating the synthetic material part following the hardening step.

9. (currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 1, wherein the spray applied material is a selected one of a material having a wax-like polymerizable substance having an ester of a carbon acid and a polymerizable alcohol and a material having an ester of an alcohol and a polymerizable carbon acid derivative of between about 20% to 99.99% by weight of the material.

10.(currently amended) A method for producing a synthetic dental restorative [[material]] part such as a full or partial dental prosthesis, comprising:
spray applying with a spray device a material having at least a polymerizable synthetic material onto a base in succeeding layers such that each layer of the spray applied material is polymerized by a light source mounted on the spray device, the material includes a wax like

Appl. No. 10/071,143

substance having a viscosity such that a run off of the just applied spray drops used for the layer building is prevented while, on the other hand, the viscosity value is so small that it is possible to perform a penetration of the spray jet thereinto in a favorable manner; and hardening at least one already applied layer prior to the application of subsequent layers; and wherein the synthetic material part is a dental restorative part and the production of the dental restorative part includes handling the dental restorative part with a color imparting material such that the dental restorative part has a color imparted by the color imparting material.

11.(original) A method for producing a synthetic material part according to claim 10, wherein the step of spray applying a material includes contemporaneously spray applying a material onto a plurality of bases each of which, upon the build up and polymerization of the material sprayed thereon, from a dental restorative part.

12.(currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 1, wherein one of the layers applied onto an already applied layer is relatively more transparent than the already applied layer.

13.(currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 1, wherein the outermost layer of the completed synthetic material part is formed of the first layer of the material which is spray applied and this first layer of material serves as a form for succeeding layers.

14.(currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 1, wherein the step of spray applying a material includes spray applying a material in a three dimensional printing process, and the step of hardening includes intermittently hardening the applied layers between the applications of the first and last layers.

Appl. No. 10/071,143

15.(currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 5, wherein the polymerization initiator is between 0.5 to 5% by weight of the wax-like dental material.

16.(currently amended) A method for producing a synthetic dental restorative [[material]] part according to claim 15, wherein the polymerization initiator is between 0.5 to 2% by weight of the wax-like dental material.

17. (new) A method for producing a dental restorative part such as a full or partial dental prosthesis, comprising the following steps:

- a) providing a printer operable for three dimensional printing process, the printer including a spray device having one or more spray jets, a light source mounted on the spray device having a high ultraviolet component which may be actuated for several seconds to effect a light hardening of applied materials, and means for optically shielding the one or more spray jets during a light hardening step in order to prevent an obstruction of the spray jets due to intensive light radiation thereon;
- b) spray applying one or more thin layers of a polymerizable material which includes a wax like substance having a viscosity such that run off of the just applied material used for the layer building is prevented;
- c) optically blocking off the one or more spray jets while the light source is actuated for several seconds to effect a light hardening of the applied materials;
- d) repeating steps b and c until the dental restorative is produced.

18. (new) A method for producing a dental restorative part according to claim 17 further including the step of providing a soft light shield between the one or more spray jets and the light source.